

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Applicants:	Arne W. Ballantine et al.	§	Art Unit:	1745
		§		
Serial No.:	10/714,232	§		
		§	Examiner:	Raymond Alejandro
Filed:	November 14, 2003	§		
		§		
Title:	Method and Apparatus for	§	Docket No.	PUG.0083C1US
	Controlling a Combined	§		(792C)
	Heat and Power Fuel Cell	§		
	System	§		

Mail Stop Amendment  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, Virginia 22313-1450

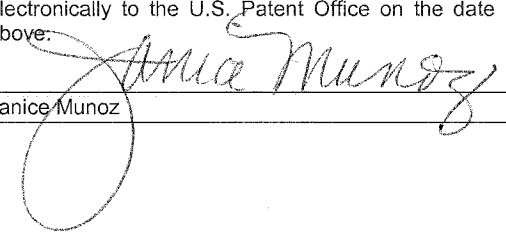
REPLY TO OFFICE ACTION DATED OCTOBER 29, 2008

Dear Sir:

Please amend the claims in accordance with the following CLAIM AMENDMENTS section; and consider the comments in the following REMARKS section.

Date of Deposit: January 29, 2009

I hereby certify that this correspondence is being transmitted electronically to the U.S. Patent Office on the date indicated above.

  
Janice Munoz

## CLAIM AMENDMENTS

1-49. (Cancelled)

50. (Currently Amended) A system comprising:

a fuel supply providing a fuel flow;

an oxidant supply providing an oxidant flow;

a fuel cell to:

receive the fuel flow and the oxidant flow, and

generate heat and power in response to the fuel flow and the oxidant flow,

a heat exchanger;

a device having a capacity to store thermal energy received from the fuel cell through the heat exchanger, the device to cause thermally-coupled to the fuel cell by the heat exchanger to receive thermal energy from the fuel cell and provide a heat demand signal to indicate a request for indicative of the device needing more thermal energy from the fuel cell; and

a diverter to route the thermal energy through the heat exchanger to the device in response to the heat demand signal indicating the request and halt the communication of thermal energy from the fuel cell through the heat exchanger to the device in response to the heat demand signal not indicating the request; and

a controller to:

control at least one of the fuel flow and the oxidant flow based on the heat demand signal and based on the power generated by the fuel cell.

51. (Previously Presented) The system of claim 50, further comprising:

a heat demand sensor to generate the heat demand signal; and

a power demand sensor to generate a power demand signal,

wherein the controller responds to the heat demand signal and the power demand signal to control at least one of the fuel flow and the oxidant flow.

52. (Previously Presented) The system of claim 51, wherein the controller reduces at least one of the fuel flow and the oxidant flow in response to no heat demand signal and no power demand signal.

53. (Previously Presented) The system of claim 51, wherein the controller increases at least one of the fuel flow and the oxidant flow in response to no heat demand signal and the presence of the power demand signal.

54. (Previously Presented) The system of claim 51, wherein the controller increases at least one of the fuel flow and the oxidant flow in response to no power demand signal and the presence of the heat demand signal.

55. (Previously Presented) The system of claim 51, wherein the controller increases at least one of the fuel flow and oxidant flow in response to the presence of the power demand signal and the presence of the heat demand signal.

56. (Previously Presented) The system of claim 51, wherein the power demand sensor comprises a fuel cell voltage sensor that produces the power demand signal in response to a voltage of the fuel cell decreasing below a predetermined level.

57. (Previously Presented) The system of claim 51, wherein the power demand sensor comprises a fuel cell current sensor that produces the power demand signal in response to an output current of the fuel cell increasing above a predetermined level.

58. (Previously Presented) The system of claim 51, wherein the power demand sensor comprises a fuel cell output current sensor and an electrical load sensor, wherein the power demand sensor produces the power demand signal when an electrical load on the fuel cell exceeds an output current of the fuel cell.

59-81. Cancelled.

## REMARKS

In an Office Action mailed on October 29, 2008, claims 50-58 were rejected under 35 U.S.C. § 102(a) as being anticipated by, or in the alternative, as being obvious under 35 U.S.C. § 103(a) over Yamada.

As amended, the system of independent claim 50 includes a device that has a heat capacity and is thermally coupled to the fuel cell through a heat exchanger to receive thermal energy from the fuel cell. The device causes a heat demand signal to indicate a request for more thermal energy from the fuel cell. The system of claim 50 also recites a diverter to communicate the thermal energy from the fuel cell through the heat exchanger to the device in response to the heat demand signal indicating the request and halt the communication of the thermal energy in response to the heat demand signal not indicating the request. In a particular implementation of the invention, paragraph nos. 70-74 of the specification sets forth an embodiment in which the fuel cell and pumps are used to control the communication of thermal energy to a water tank 408. In this regard, when the tank 408 needs more thermal energy, the pumps transfer the thermal energy to the tank 408. However, when the tank 408 no longer needs additional thermal energy, the pumps divert the thermal energy away from the tank. Other embodiments are contemplated, such as the additional embodiments that are described in the specification, for example, and are within the scope of the appended claims.

Contrary to the claimed invention, Yamada merely discloses various sensors, as noted by the Examiner. However, even assuming, for purposes of argument, that one of these sensors may provide an indication of a temperature of a component, Yamada fails to disclose the specific arrangement that is set forth in amended claim 50. In this regard, Yamada fails to disclose a device that has a thermal capacity and controls a heat demand signal for purposes of communicating and halting the communication of thermal energy to the device from a fuel cell through a heat exchanger. Thus, merely labeling one of Yamada's reformer elements as a heat exchanger and labeling an arbitrary component as the device of claim 50 does not produce the claimed invention, as the specifically-claimed device, diverter and control technique are not disclosed in Yamada.

In order to anticipate a claim under 35 U.S.C. § 102, a single reference must teach each and every element of the claim. *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631 (Fed. Cir. 1987). In fact, "[t]he identical invention must be shown in as complete detail as is

contained in the ... claim." *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236 (Fed. Cir. 1989). Furthermore, in order for a reference to be anticipatory, "[its] elements must be arranged as required by the claim." *In re Bond*, 910 F.2d 831 (Fed. Cir. 1990), *cited in* M.P.E.P. § 2131.

For at least the reason that Yamada fails to disclose the device and diverter of claim 50, Yamada fails to anticipate this claim.

To make a determination under 35 U.S.C. § 103, several basic factual inquiries must be performed, including determining the scope and content of the prior art, and ascertaining the differences between the prior art and the claims at issue. *Graham v. John Deere Co.*, 383 U.S. 1, 17, 148 U.S.P.Q. 459 (1965). Moreover, as the U.S. Supreme Court held, it is important to identify a reason that would have prompted a person of ordinary skill in the art to combine reference teachings in the manner that the claimed invention does. *KSR International Co. v. Teleflex, Inc.*, 127 S. Ct. 1727, 1741, 82 U.S.P.Q.2d 1385 (2007).

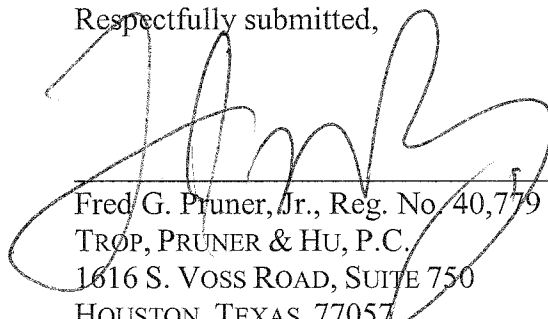
Yamada fails to render amended independent claim 50 obvious for at least the reason that no plausible explanation appears to exist why one of skill in the art in possession of Yamada would have modified this reference to control the flow of thermal energy to a device, as now set forth in claim 50. In this regard, merely regulating a temperature of a component of Yamada's system does not produce the claimed invention, as there is no reason why one of skill in the art in possession of Yamada would have controlled the thermal flow to a device via a heat demand signal and diverter, as now set forth in this claim. Thus, Applicant respectfully requests withdrawal of the § 103 rejection of claim 50.

Dependent claims 51-58 are patentable for at least the reason that these claims depend from an allowable claim.

CONCLUSION

In view of the foregoing, Applicant respectfully requests withdraw of the §§ 102 and 103 and a favorable action in the form of a Notice of Allowance. The Commissioner is authorized to charge any additional fees or credit any overpayment to Deposit Account No. 20-1504 (PUG.0083C1US).

Respectfully submitted,



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